A' concl'd

a readout circuit electrically coupled to the plurality of detector elements and comprising means for biasing the plurality of detector elements so as to provide separate detection signals corresponding to each detector element in the array, in response to incident infrared radiation and means for separately correcting offsets in the detection signals [Provided] provided from the plurality of elements in the detector array to compensate for nonuniformities in the detector elements, wherein said means for correcting comprises:

a correction circuit including a plurality of parallel connected circuit elements; and

means for selectively electrically connecting said circuit elements into the detector readout circuit in response to stored offset correction values; and

output means for providing the corrected detection signals as an output of the focal plane array;

means for storing a plurality of offset correction values corresponding to the plurality of detector elements; and

means for providing the offset correction values to said means for correcting.

2. (Twice Amended) An infrared imaging system as set out in claim 1, wherein said plurality of parallel connected circuit elements comprise a plurality of capacitors.

A2

5. (Twice Amended) An infrared imaging system as set out in claim 1, wherein said means for selectively connecting comprises a plurality of switches, equal in number to said plurality of parallel connected circuit elements and connected in series therewith.

A3

9. (Twice Amended) An infrared imaging system as set out in claim 1, wherein said plurality of parallel connected circuit elements comprise a plurality of constant current sources.

A4

26. (Twice Amended) An infrared imaging system, comprising:

an infrared focal plane array comprising:

a plurality of infrared detector elements arranged in an array;

a readout circuit electrically coupled to the plurality of detector elements and comprising a plurality of readout cells equal in number to the plurality of detector elements, means for biasing the plurality of detector elements so as to provide separate detection signals corresponding to each detector element in the array, in response to incident infrared radiation and means for separately correcting offsets in the detection signals provided from the plurality of elements in the detector array to compensate for nonuniformities in the detector elements, wherein said means for correcting comprises an offset correction circuit in each readout cell of the readout circuit and wherein each offset

correction circuit comprises a plurality of parallel connected circuit elements and means for selectively electrically connecting said circuit elements into the readout cell in response to a stored offset correction value corresponding to said readout cell; and

output means for providing the corrected detection signals as an output of the focal plane array;

means for storing a plurality of offset correction values corresponding to the plurality of detector elements; and

means for providing the offset correction values to said means for correcting.

27. (Twice Amended) An infrared focal plane array, comprising:

a plurality of detector elements configured in a two dimensional array; and

a readout circuit electrically coupled to said plurality of detector elements and structurally integrated therewith, said readout circuit comprising:

a sample and hold capacitor;

means for biasing the detector elements so as to provide an analog detection signal from each detector element corresponding to the infrared radiation incident thereon, wherein the analog detection signal is a voltage signal

A4 concl'd

provided at a sample node coupled to the sample and hold capacitor; and

means for correcting the analog detection signal from each detector element by a discrete offset correction and providing a corrected analog detection signal, wherein the discrete offset correction varies from detector element to detector element and comprises an offset correction voltage added to, or subtracted from, the analog detection signal, wherein said means for correcting subtracts or adds a variable amount of charge from said sample and hold capacitor to provide a corrected voltage signal at said sample node, and wherein said means for correcting comprises a plurality of capacitors connected between said sample node and a reference voltage and a corresponding plurality of switches coupled in series with each respective capacitor and said reference voltage, wherein said plurality of switches are selectively turned on or off to provide a desired amount of discrete offset correction for each detector element.

A5

35. (Twice Amended) An infrared focal plane array, comprising:

a plurality of detector elements configured in a two dimensional array; and

a readout circuit electrically coupled to said plurality of detector elements and structurally integrated therewith, said readout circuit comprising:

A5 cancl'd

a sample and hold capacitor;

means for biasing the detector elements so as to provide an analog detection signal from each detector element corresponding to the infrared radiation incident thereon, wherein the analog detection signal is a voltage signal provided at a sample node coupled to the sample and hold capacitor; and

means for correcting the analog detection signal from each detector element by a discrete offset correction and providing a corrected analog detection signal, wherein the discrete offset correction varies from detector element to detector element and comprises an offset correction voltage added to, or subtracted from, the voltage signal, wherein said means for correcting subtracts or adds a variable amount of charge from said sample and hold capacitor to provide a corrected voltage signal at said sample node, and wherein said means for correcting comprises a plurality of parallel connected constant current sources connected between said sample node and a reference voltage and a plurality of switches corresponding to said plurality of constant current sources and respectively coupled in series therewith.

Please add the following claims:

40. An infrared imaging system, comprising:

an infrared focal plane array comprising:

a plurality of infrared detector elements arranged in an array;

a readout circuit electrically coupled to the plurality of detector elements and comprising means for biasing the plurality of detector elements so as to provide separate detection signals corresponding to each detector element in the array, in response to incident infrared radiation and means for separately correcting offsets in the detection signals provided from the plurality of elements in the detector array to compensate for nonuniformities in the detector elements, wherein said means for correcting comprises:

a correction circuit including a plurality of circuit elements; and

means for selectively electrically connecting said circuit elements into the detector readout circuit in response to stored offset correction values; and

output means for providing the corrected detection signals as an output of the focal plane array;

means for storing a plurality of offset correction values corresponding to the plurality of detector elements; and

means for providing the offset correction values to said means for correcting.

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41.An infrared imaging system as set out in claim 40, wherein said plurality of circuit elements comprise a plurality of capacitors.

42. An infrared imaging system as set out in claim 40, wherein said means for selectively connecting comprises a plurality of switches, equal in number to said plurality of circuit elements and connected in series therewith.

43. An infrared imaging system as set out in claim 40, wherein said plurality of circuit elements comprise a plurality of constant current sources.

44. An infrared imaging system as set out in claim 40, further comprising means, coupled to said output means, for analog to digital converting the corrected detection signals and providing corresponding image data for each detector element.

45 An infrared imaging system as set out in claim 40, wherein said plurality of detector elements comprise microbolometer detector elements.

46. An infrared imaging system as set out in claim 40, wherein said offset correction values are binary values and wherein said means for storing comprises a digital memory.

A6 cont.

47. An infrared imaging system as set out in claim 40, wherein said array of detector elements and said readout circuit are formed as a single monolithic integrated circuit chip.

48. An infrared imaging system as set out in claim 40, further comprising timing means for providing focal plane timing signals to said readout circuit.

49 An infrared imaging system as set out in claim 40, wherein said plurality of detector elements are arranged in a plurality of rows and columns and wherein said means for correcting comprises a separate offset correction circuit for each column and wherein said means for providing said offset correction values provides said offset correction values in a time multiplexed manner to said means for correcting.

50. An infrared imaging system as set out in claim 40, wherein said output means comprises one or more output buffers.

51. An infrared imaging system as set out in claim 1, wherein said focal plane array further comprises a differential amplifier with first and second inputs wherein the first input

is electrically connected to the readout circuit so as to receive the detection signals and wherein the second input is connected to an adjustable reference voltage.

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52. An infrared imaging system, comprising:

an infrared focal plane array comprising:

a plurality of infrared detector elements arranged in an array;

a readout circuit electrically coupled to the plurality of detector elements and comprising a plurality of readout cells equal in number to the plurality of detector elements, means for biasing the plurality of detector elements so as to provide separate detection signals corresponding to each detector element in the array, in response to incident infrared radiation and means for separately correcting offsets in the detection signals provided from the plurality of elements in the detector array to compensate for nonuniformities in the detector elements, wherein said means for correcting comprises an offset correction circuit in each readout cell of the readout circuit and wherein each offset correction circuit comprises a plurality of circuit elements and means for selectively electrically connecting said circuit elements into the readout cell in response to a stored offset

A6 Cont.

correction value corresponding to said readout cell; and

output means for providing the corrected detection signals as an output of the focal plane array;

means for storing a plurality of offset correction values corresponding to the plurality of detector elements; and

means for providing the offset correction values to said means for correcting.

53. An infrared focal plane array, comprising:

a plurality of detector elements configured in a two dimensional array; and

a readout circuit electrically coupled to said plurality of detector elements and structurally integrated therewith, said readout circuit comprising:

a sample and hold capacitor;

means for biasing the detector elements so as to provide an analog detection signal from each detector element corresponding to the infrared radiation incident thereon, wherein the analog detection signal is a voltage signal provided at a sample node coupled to the sample and hold capacitor; and

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means for correcting the analog detection signal from each detector element by a discrete offset correction and providing a corrected analog detection signal, wherein the discrete offset correction varies from detector element to detector element and comprises an offset correction voltage added to, or subtracted from, the analog detection signal, wherein said means for correcting subtracts or adds a variable amount of charge from said sample and hold capacitor to provide a corrected voltage signal at said sample node, and wherein said means for correcting comprises a plurality of circuit elements connected between said sample node and a reference voltage and a corresponding plurality of switches coupled in series with each respective circuit element and said reference voltage, wherein said plurality of switches selectively provide a desired amount of discrete offset correction for each detector element.

54. An infrared focal plane array as set out in claim 53, wherein said readout circuit further comprises means for controlling said means for correcting so as to selectively open and close said plurality of switches in a time multiplexed manner during readout of a plurality of separate detector elements.

55. An infrared focal plane array as set out in claim 53, wherein said detector elements comprise microbolometer detector elements.

A6 Cont.

56. An infrared focal plane array as set out in claim 53, wherein said readout circuit further comprises a differential amplifier having first and second inputs, the first input thereof coupled to said sample node and said second input thereof coupled to a adjustable voltage source.

57. An infrared focal plane array as set out in claim 53 wherein said plurality of detector elements and said readout circuit are formed as a single monolithic integrated circuit wherein said readout circuit acts as a substrate for said detector elements.

58. An infrared focal plane array, comprising:

a plurality of detector elements configured in a two dimensional array; and

a readout circuit electrically coupled to said plurality of detector elements and structurally integrated therewith, said readout circuit comprising:

a sample and hold capacitor;

means for biasing the detector elements so as to provide an analog detection signal from each detector element corresponding to the infrared radiation incident thereon, wherein the analog detection signal is a voltage signal

provided at a sample node coupled to the sample and hold capacitor; and

means for correcting the analog detection signal from each detector element by a discrete offset correction and providing a corrected analog detection signal, wherein the discrete offset correction varies from detector element to detector element and comprises an offset correction voltage added to, or subtracted from, the voltage signal, wherein said means for correcting subtracts or adds a variable amount of charge from said sample and hold capacitor to provide a corrected voltage signal at said sample node, and wherein said means for correcting comprises a plurality of constant current sources connected between said sample node and a reference voltage and a plurality of switches corresponding to said plurality of constant current sources and respectively coupled in series therewith.